

### **ABSTRACT**

This invention provides an apparatus and method for analyzing a polynucleotide sequence; either an unknown sequence or a known sequence. A support, e.g. a glass plate, carries an array of the whole or a chosen part of a complete set of oligonucleotides which are capable of taking part in hybridization reactions. The array may comprise one or more pair of oligonucleotides of chosen lengths. The polynucleotide sequence, or fragments thereof, are labelled and applied to the array under hybridizing conditions. Applications include analyses of known point mutations, genomic fingerprinting, linkage analysis, characterization of mRNAs, mRNA populations, and sequence determination.